UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
KENNEDY, ADRIAN L

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	10/645,982	THOMPSON, DEAN S.
Office Action Summary	Examiner	Art Unit	
	Adrian L. Kennedy	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 August 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-20</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>22 August 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>07/30/2004</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Examiner's Detailed Office Action

1) This Office Action is responsive to application **10/645,982**, filed **August 22, 2003**.

2) **Claims 1-20** have been examined.

Information Disclosure Statement

3) Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all

pertinent information and material pertaining to the patentability of applicant's claimed

invention, by continuing to submit in a timely manner PTO-1449, Information Disclosure

Statement (IDS) with the filing of applicant's application or thereafter.

Double Patenting

4) Applicant is advised that should claim 7 be found allowable, claim 9 will be objected to

under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an

application are duplicates or else are so close in content that they both cover the same thing,

despite a slight difference in wording, it is proper after allowing one claim to object to the

other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

5) 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

6) The invention as disclosed in claims 1-20 are directed to non-statutory subject matter i.e.,

an abstract idea. Regarding claims 1-20, the applicant is reminded that "*the claimed invention as*

a whole must accomplish a practical application. That is it must produce a 'useful, concrete

and tangible result'." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02, MPEP § 2106 [R-

3] (II-A)

Applicant's claimed invention of claims 1-19 sets forth a method of constructing a program,

but fails to actually construct the program. The actions set forth in applicant's claims constitute

thought based acts that only contribute to the abstract method as a whole. The intention of

constructing a program lacks the useful and tangible result of an actual program. Additionally,

regarding claim 20, a system for constructing a program that doesn't actually construct a

program is non-statutory per se.

Reading applicant's claims in light of the specification, no limit is placed upon the method of

representing the system, since applicant has presented a series of non-limiting examples of what

the invention could be without specifying exactly what the invention is.

7) Quoting Diamond V. Diehr and Lutton, 209 USPQ 1 (US SupCt 1981):

> *...the definition of "process" announced by this Court in Cochrane v. Deener 94 U.S. 780,*
> *787-788 (1876), seemed to indicate that **a patentable process must cause a physical***
> ***transformation in the materials to which the process is applied.** See ante, at 7-8, 209*
> *USPQ at 6*

8) **Therefore, claims 1-20 are rejected under 35 USC § 101.**

Claim Rejections - 35 USC § 112

9) The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

10)   Claims 1-20 are considered to be indefinite. Reading applicant's disclosure, the claims

having been read in light thereof, it is not clear what applicant's invention is directed to. While

applicant has provided potential examples, applicant has not particularly pointed out and

distinctly claimed that which is their invention. A statement of what the invention could be or

examples of what the invention might be does not provide an adequate description of what the

applicant has invented.

Claim Rejections - 35 USC § 103

11) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

12)   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness
       or nonobviousness.

13)   Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Pelikan et al.*

(USPN 7,047,169), Filed: January 18, 2002; Date of Patent: May 16, 2006 in view of *Yoshida et*

al. (USPN 6,263,325), Filed: September 29, 1998; Date of Patent: July 17, 2001.

Regarding claim 1:

Pelikan et al. teaches

A method of constructing at least one computer program that solves a problem,

comprising the steps of:

defining [C 3, L 57-63; *"generating"*] a set of traits [C 3, L 57-63; *"first set of*

solutions"] in which each trait characterizes a portion of a solution algorithm to

the problem [C 3, L 52-54; *"solution set for a problem"*];

providing an implementation [C 3, L 52-54; *"products for optimizing"*; The

examiner takes the position that the implementation is the method used to solve

the problem or optimize the solution for at least one of the defined programming

interfaces;

specifying a subtrait [C 3, L 57-63; *"second set from the first"*] associated with at

least one of the traits [C 3, L 57-63; *"first set of solutions"*] or the

implementations [C 3, L 52-54; *"products for optimizing"*];

selecting a top-level trait [C 3, L 57-63; *"first set of solutions"*] that characterizes

a solution to the problem;

selecting a top-level implementation [C 3, L 52-54; *"products for optimizing"*]

for the top-level trait;

selecting an implementation for each subtrait [C 3, L 57-63; *"second set from the*

first"] required for the top-level trait or the top-level implementation;

recursively [The examiner takes the position that the solution generating and

optimizing method continually generates solution sets by recursively calling

itself] selecting an implementation [C 3, L 52-54; *"products for optimizing"*] for

each subtrait [C 3, L 57-63; *"second set from the first"*] associated with at least

one of the traits [C 3, L 57-63; *"first set of solutions"*] or the implementations [C

3, L 52-54; *"products for optimizing"*] in order to construct a trait hierarchy [C 4,

L 20-24; *"hierarchical relationships"*] that forms a computer program for solving

the problem.

Pelikan et al. does not teach defining a programming interface.

The examiner takes the position that an implementation is a method of solving a problem

and that a top-level trait is any solution or set of solutions that acts as a parent to any

other solution sets.

However, Yoshida et al. teaches

defining a programming interface [C 4, L 8-15; *"user terminal"*] for at least one of the

traits;

It would have been obvious to one skilled in the art at the time of applicant's invention to

combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Regarding claim 2:

Pelikan et al. teaches

The computer program constructing method wherein the at least one trait [C 3, L 57-63;

"first set of solutions"] comprises a plurality of traits [C 3, L 57-63; *"second set from the*

first "].

Regarding claim 3:

Pelikan et al. teaches the defining [C 3, L 57-63; *"generating "*] of traits [C 3, L 57-63;

"first set of solutions "]. Pelikan et al. does not a computer programming.

However, Yoshida et al. teaches

a computer programming interface [C 4, L 8-15; *"user terminal "*].

It would have been obvious to one skilled in the art at the time of applicant's invention to

combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem "].

Regarding claim 4:

Pelikan et al. teaches the use of varying implementations [C 3, L 52-54; *"products for*

optimizing "]. Pelikan et al. does not teach the use of a programming interface.

However, Yoshida et al. teaches

a computer programming interface [C 4, L 8-15; *"user terminal "*]

The examiner takes the position that the invention of Yoshida et al. facilitates the use of

varying implementations depending on which what the user defines in the terminal.

Therefore, it would have been obvious to one skilled in the art at the time of applicant's

invention to combine the invention of Pelikan et al. with the invention of Yoshida et al.

for the purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11;

"obtaining an optimum solution or promising solutions to a problem"].

Regarding claim 5:

Pelikan et al. teaches

The computer program constructing method wherein the subtrait [C 3, L 57-63; *"second set from the first"*] comprises a plurality of subtraits [C 3, L 57-63; *"third set of solution"*].

Regarding claim 6:

Pelikan et al. has been discussed above and teaches the computer program constructing · method wherein the subtrait [C 3, L 57-63; *"second set from the first"*] comprises a plurality of subtraits [C 3, L 57-63; *"third set of solution"*].

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*].

Regarding claim 7:

Pelikan et al. teaches

The computer program constructing method wherein the top-level trait [C 3, L 57-63; *"first set of solutions"*] comprises a plurality of top-level traits [C 3, L 57-63; *"second set from the first"*].

The examiner takes the position that the second set of solutions taught by Yoshida et al qualify as top-level traits because they can act as parents to another set of traits.

Regarding claim 8:

Pelikan et al. teaches

The computer program constructing method wherein the top-level trait [C 3, L 57-63; *"first set of solutions"*] comprises a plurality of top-level traits [C 3, L 57-63; *"second set from the first"*].

The examiner takes the position that the second set of solutions taught by Yoshida et al qualify as top-level traits because they can act as parents to another set of traits.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*].

Regarding claim 9:

Pelikan et al. teaches

The computer program constructing method wherein the top-level trait [C 3, L 57-63; *"first set of solutions"*] comprises a plurality of top-level traits [C 3, L 57-63; *"second set from the first"*].

The examiner takes the position that the second set of solutions taught by Yoshida et al qualify as top-level traits because they can act as parents to another set of traits.

Regarding claim 10:

Pelikan et al. teaches

The computer program constructing method wherein the subtraits [C 3, L 57-63; *"second set from the first"*] are associated with at least one of the traits [C 3, L 57-63; *"first set of solutions"*], the implementation [C 3, L 52-54; *"products for optimizing"*], or both.

Regarding claim 11:

Pelikan et al. teaches

The computer program constructing method wherein the subtrait [C 3, L 57-63; *"second set from the first"*] is one of the defined set of traits [C 3, L 57-63; *"first set of solutions"*].

Regarding claim 12:

Pelikan et al. teaches

The computer program constructing method wherein the subtraits [C 3, L 57-63; *"second set from the first"*] are associated with at least one of the traits [C 3, L 57-63; *"first set of solutions"*], the implementation [C 3, L 52-54; *"products for optimizing"*], or both.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Regarding claim 13:

Pelikan et al. teaches

The computer program constructing method further comprising the steps of:

implementing an evaluation module [C 3, L 54-57; *"iterative process"*] that

executes a constructed computer program in order to determine its effectiveness

in solving the problem [C 3, L 52-54; *"optimizing a solution set for a problem"*];

and

applying an optimization technique [C 3, L 52-54; *"program product for*

optimizing"] to generate at least one computer program that solves the problem [C

3, L 54-63; *"population of candidate solutions"*], and that uses feedback from the

evaluation module to generate at least one additional computer program that

better solves the problem.

It would have been obvious to one skilled in the art at the time of applicant's invention to

combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Regarding claim 14:

Pelikan et al. teaches

> The computer program constructing method wherein the optimization technique [C 3, L
> 52-54; *"program product for optimizing"*] is selected from the group consisting of
> simulated annealing, an evolutionary algorithm, and a particle swarm optimization.
> The examiner takes the position that by not specifically disclosing his method of
> optimization, Pelikan et al anticipates the claiming of specific optimization algorithms in
> applicant's claimed invention. Furthermore, it would have been obvious to one skilled in
> the art at the time of applicant's invention to combine the invention of Pelikan et al. with
> the invention of Yoshida et al. for the purpose of solving a problem [*Yoshida et al.*
> (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions*
> *to a problem"*].

Regarding claim 15:

> Pelikan et al. does not teach allowing a user to interactively choose which trait
> implementations are favored at each point.

However, Yoshida et al. does teach

> The computer program constructing method further comprising the steps of:
>
> > allowing a user to interactively choose [C 4, L 8-15; *"user terminal"*] which trait
> > implementations are favored or excluded at each point in each alternative
> > computer program created by the optimization technique.
>
> It would have been obvious to one skilled in the art at the time of applicant's invention to
> combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Regarding claim 16:

Pelikan et al does not teach an implementation interface that provides information about a

trait implementation. Pelikan does teach the use of various traits [C 3, L 57-63; *"first set*

of solutions"] and subtraits [C 3, L 57-63; *"second set from the first"*].

However, Yoshida et al. does teach

The computer program constructing method further comprising the steps of:

defining at least one self-describing method as part of the trait implementation's

interface [C 3, L 25-34; *"displaying unit"*] that provides information about the

trait implementation [C 3, L 25-34; *"object means"*] or its associated subtrait; and

implementing [C 3, L 54-57; *"iterative process"*] the at least one self-describing

method as part of the trait implementation.

The examiner takes the position that optimization algorithms and solutions generated by

optimization algorithms are inherently describe their own structure. Additionally, the

examiner takes the position that the iterative process is the actual implementation of the

various optimization methods, traits and subtraits.

It would have been obvious to one skilled in the art at the time of applicant's invention to

combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Regarding claim 17:

>   Pelikan et al. does not teach the using of at least one self-describing method in a user
>   interface to provide descriptions and other detailed information about the constructed
>   solution algorithm

However, Yoshida et al. does teach

>   The computer program constructing method further comprising the steps of:
>
>> using the at least one self-describing method [C 3, L 25-34; *"algorithm"*] in a
>>
>> user interface [C 3, L 25-34; *"displaying unit"*] to provide descriptions and other
>>
>> detailed information [C 4, L 8-15; *"execution condition"*] about the constructed
>>
>> solution algorithm.
>
>   It would have been obvious to one skilled in the art at the time of applicant's invention to
>
>   combine the invention of Pelikan et al. with the invention of Yoshida et al. for the
>
>   purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*
>
>   *an optimum solution or promising solutions to a problem"*].

Regarding claim 18:

>   The computer program constructing method further comprising the steps of:
>
>> using the at least one self-describing method [*Yoshida et al.* (USPN 6,263,325);
>>
>> C 3, L 25-34; *"algorithm"*] in an optimization technique [*Yoshida et al.* (USPN
>>
>> 6,263,325); C 1, L 8-11; *"obtaining an optimum solution"*] to assist in the
>>
>> creation of alternative computer programs.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*].

Regarding claim 19:

Pelikan et al does not teach the use of an interactive development environment.

However, Yoshida et al. does teach

The computer program constructing method further comprising the steps of:

using the at least one self-describing method [*Yoshida et al.* (USPN 6,263,325); C 3, L 25-34; *"algorithm"*] in an interactive development environment [C 3, L 2-4; *"change processing unit"*] to assist a user in assembling computer programs.

It would have been obvious to one skilled in the art at the time of applicant's invention to combine the invention of Pelikan et al. with the invention of Yoshida et al. for the purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining an optimum solution or promising solutions to a problem"*].

Regarding claim 20:

A system for constructing at least one computer program that solves a problem, comprising:

means for defining [C 3, L 57-63; *"generating"*] a set of traits [C 3, L 57-63; *"first set of solutions"*] in which each trait characterizes a portion of a solution algorithm to the problem;

a subtrait [C 3, L 57-63; *"second set from the first"*] associated with at least one

of the traits or the implementations [C 3, L 52-54; *"products for optimizing"*];

Pelikan et al. does not teach a programming interface and a means for selecting and

recursively selecting. Pelikan et al. does teach top-level traits, subtraits and

implementations.

However, Yoshida et al. does teach

a means for selecting [C 3, L 2-4; *"change processing unit"*] and a programming

interface [C 4, L 8-15; *"user terminal"*].

It would have been obvious to one skilled in the art at the time of applicant's invention to

combine the invention of Pelikan et al. with the invention of Yoshida et al. for the

purpose of solving a problem [*Yoshida et al.* (USPN 6,263,325); C 1, L 8-11; *"obtaining*

an optimum solution or promising solutions to a problem"].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Kikuchi et al. (USPN 6,182,057) is cited for his method for executing a genetic algorithm. Lyon

(USPN 5,581,657) is cited for his system for integrating multiple genetic algorithms

applications. Graefe et al. (USPN 5,822,747) is cited for his methods of optimizing data base

queries. Shinagawa et al. (USPN 5,897,629) is cite for his apparatus for solving optimization

problems. Koza (USPN 4,935,877) is cited for his non-linear genetic algorithm for solving

problems. Couch et al. (USPN 6,725,212) is cited for his platform independent method for

graphically representing the evaluation of a query.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 272-5933. The examiner can normally be reached on Mon -Fri 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK

Anthony Knight
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RAMESH PATEL
PRIMARY EXAMINER

For Anthony Knight